THE ORGANIZATIONAL RESILIENCE OF HIGH-TECH COMPANIES IN THE CURRENT INTERNATIONAL BUSINESS ENVIROMENT - A CASE STUDY OF HUAWEI IN YUNNAN

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Thematic Certificate

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Title: The Organizational Resilience of High-tech Companies in the Current International Business Environment - A Case Study of Huawei in Yunnan

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ABSTRACT

The international business environment shows characteristics of uncertainty and crisis, and high-tech companies need good organizational resilience to resist crises. The objectives of the study are as follows: 1. To explore the behaviors and factors that play a role in forming and promoting organizational resilience; 2. To determine the regulating variables of organizational resilience. The research object is Huawei, including ten interviewees from the Huawei Yunnan branch, Huawei-related literature, and enterprise data.

The research adopted qualitative analysis. The research methods are case study, literature method, and interview method. Footed on the contingency theory, resource-based view, and dynamic capabilities theory, the author used the structured data analysis method and frame coding method to analyze the experience of Huawei's successful response to the crisis and obtained the theory and method to improve organizational resilience for high-tech companies. The finding and conclusion show that: 1. The behaviors and factors that promote organizational resilience can be summarized as crisis warning, resilience mobilization, strategic adjustment, resilience effect, resilience resources, and crisis awareness. They interact with each other to produce a dynamic and cyclic process that forms and improves organizational resilience; 2. Based on the framework of monitoring, responding, anticipating, and learning, the study obtained a model for regulating variables of organizational resilience. The regulating variables of organizational resilience include crisis awareness, self-criticism mechanism, resource redundancy, core technology capabilities, strategic forward-looking, learning from crisis events, etc. This model can be used to analyze the level of organizational resilience in high-tech companies. And enhancing these regulating variables can improve organizational resilience.

Keywords: crisis management, organization resilience, high-tech company, international business, Huawei

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Xichen Zhang
Jun 23, 2023

Declaration

I, Xichen Zhang, hereby certify that the work embodied in this independent study entitled "The Organizational Resilience of High-tech Companies in the Current International Business Environment - A Case Study of Huawei in Yunnan" is result of original research and has not been submitted for a higher degree to any other university or instituition.

Xichen Zhang

(Xichen Zhang)

Jun 23, 2023

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Chapter 1 Introduction

1.1 Research Background

Huawei is a Chinese high-tech enterprise founded in 1987, engaged in the research and development and manufacturing of ICT equipment and intelligent terminals. Its business covers communication equipment, smartphones, artificial intelligence, chip design, Internet of Things, enterprise digital services, etc. At present, Huawei has become a leading enterprise in the ICT industry (Deng, 2022). In the process of transnational trade from 2000 to now, Huawei has encountered many crises, such as the Internet bubble in 2000, the infringement case of Cisco in 2004, and the sanctions from BIS in 2021. Especially since 2018, Huawei has encountered an unprecedented crisis due to uncertainties and crises brought about by factors such as international political relations and industrial competition. Huawei is included in the BIS entity list, so most semiconductor companies in the world can not provide Huawei chips and technology. This has seriously affected Huawei's core business smartphones, so Huawei has a serious decline in performance and a survival crisis (Bian & Liao, 2022). However, Huawei maintained a stable performance in these severe crises and quickly recovered from the crisis. In terms of results, it shows good organizational resilience, so this paper tries to study the reasons for Huawei's good organizational resilience and the formation process of organizational resilience.

Due to adverse economic, political, and social impacts, international business activities are volatile, uncertain, complex, and ambiguous. MNCs need good management ways to be more risk-resistant. Luthans (1973) argues that management should be adjusted to the environment. This perspective provides the authors with a line of thought: What management approaches and theories are effective in the current uncertain environment? Organizational resilience in an uncertain environment is a core competency for firms to cope with crises, which can help them recover and bounce back quickly from the challenges of adverse events and grow against the odds in the process of reflection and improvement (Williams, Gruber, & Sutcliffe, 2017). A perspective suggests that the study of organizational resilience requires specific contexts (Song, Wang, & Chen, 2021).

Due to their key position in the country's economic development, high-tech companies may become important targets of national competition in an international

situation where trade protectionism is prevalent. From the external factors, high-tech enterprises will bear more political and trade risks; from the internal factors, they are characterized by high technological barriers, technology intensity, and the importance of intellectual capital (Li, 2015). The external and internal characteristics of high-tech firms can provide unique research contexts for the study of organizational resilience. This paper intends to explore the formation process and determinants of organizational resilience of firms, provide a theoretical basis for firms to improve organizational resilience, and help multinational high-tech firms to maintain organizational performance and improve risk resistance in the current international business environment.

1.2 Research Problems

Today's international business environment is full of uncertainty and crisis, and organizational resilience is an effective and important ability to cope with this environment. However, the formation mechanism of organizational resilience remains to be studied, and enterprise managers lack methods to form and improve organizational resilience.

Huawei has encountered a series of crises in international business activities, some of which are fatal. They have serious implications for Huawei's performance and survival. Even so, Huawei has always recovered from crises and grown. However, high-tech companies lack systematic theory to form and promote organizational resilience. The reasons and principles for Huawei's good organizational resilience are unclear.

High-tech companies in the international business environment need analysis models and improvement methods for organizational resilience to form early and long-term crisis response capabilities. However, existing research lacks practical and usable models to analyze and improve organizational resilience.

1.3 Objective of the study

This paper aims to explore the process and mechanism of organizational resilience formation and how to improve organizational resilience in high-tech enterprises.

1. To explore the behaviors and factors that play a role in forming and

promoting organizational resilience.

2. To determine the regulating variables of organizational resilience.

1.4 Scope of the study

This study aims to explore how multinational high-tech companies can improve organizational resilience in the current environment. The study of organizational resilience is part of crisis management. The scope of this topic is multinational corporation management. The case of this paper is Huawei, a communication company that engages in cross-border trade of technology and goods. This paper studies Huawei's crisis, crisis response behavior, and significant events from 2000 to 2022. The theories involved in this research are the Resource-Based View, Dynamic Capability, and Organizational Resilience Theory. The study of the regulating variables of organizational resilience utilized a framework of measurement dimensions: monitoring, reacting, predicting, and learning (Patriarca, 2018). The literature referred to in this paper involves organizational resilience, research on Huawei, enterprise management, etc.

1.5 Research Significance

Most studies currently focus on the impact of one aspect on organizational resilience, and there are relatively few studies on organizational resilience from a holistic organizational perspective (Shang, Fan, Yuan, & Li, 2021). This study provides a systematic and holistic perspective of organizational resilience theory, filling the research gap in the overall organizational resilience of some enterprises. In addition, a lack of research takes multinational high-tech firms as a context (Shan, Xu, Zhou, & Zhou, 2021). Due to the contextual needs of organizational resilience research and the differences in organizational resilience characteristics of different types of enterprises, this study enriches the research context of organizational resilience. Since firms lack mature organizational resilience analysis models that can be applied in management practice, this paper provides the principles and methods for improving organizational resilience in uncertain environments.

Chapter 2 Literature Reviews

2.1 Crisis management and organizational resilience

Enterprise crisis management is a systematic mechanism established within enterprises to prevent crises and reduce the adverse effects of crises. Its main responsibilities include early warning, reducing the damage caused by crises, formulating strategies to solve crises, and summarizing the experience of handling crises afterward to achieve scientific and systematic handling of crises. The existing research on crisis management involves crisis public opinion management, crisis management system, crisis response strategies, etc. Theoretically, a series of measures taken by enterprises to prevent crises and eliminate the impact of crises are enterprise crisis management. Organizational resilience has become the core ability to cope with crises in an uncertain environment (Shan, Xu, Zhou, & Zhou, 2021). Organizational resilience theory is a branch of crisis management theory. It focuses on the formation of long-term, early, and agile anti-crisis capabilities. Organizational resilience enables enterprises to demonstrate strong anti-crisis capabilities and quick rebound.

Organizational resilience is an enterprise's ability to maintain stability and rapidly recover and grow in performance during a crisis. Some enterprises have shown strong crisis tolerance and rapidly returned to revenue and profit growth after a crisis. Researchers have called this characteristic of enterprises organizational resilience and formed theories about it. From the process perspective, organizational resilience is divided into resource preparation, crisis information identification, reintegration of resources, recovery, and progress (Li & Zhu, 2021). Organizational resilience is a long-term and holistic ability, rather than a temporary strategy and ability of a certain department of an enterprise to cope with a crisis. This ability provides enterprises with fault tolerance to cope with a crisis. It enables enterprises to continuously reconstruct and grow in a crisis to better adapt to a crisis-filled and uncertain environment.

The research on organizational resilience needs specific situations. In today's international business environment full of crisis and uncertainty, on the one hand, high-tech companies face more political and trade risks, and on the other hand, they have high technical barriers (Song, Wang, & Chen, 2021). These provide the situation for the research on organizational resilience in this paper. The

organizational resilience of other types of enterprises may be more reflected in the institutional, strategic, and financial capabilities of enterprises. But the importance of their technology and products is lower than that of high-tech companies. For high-tech companies, technology and research and development are the core of the business. Organizational resilience requires the resilience of multiple aspects of enterprises, and the core technology and research and development of high-tech enterprises need long-term accumulation (Li, 2015). This means that the organizational resilience of high-tech companies needs to be laid out in the early stage and take a long time to form. Some companies' core technology and product research and development take several years or even more than a decade. So the organizational resilience of high-tech companies needs early and long-term preparation. In addition, the current international business environment full of uncertainty and crisis makes high-tech companies face more political, national level, and supply chain crises. This requires the organizational resilience of high-tech companies to be stronger, faster, and more acute.

From the process perspective, Allen and Toder (2004) believe that organizational resilience is the process by which organizations recover from the damage caused by traumatic events. The capability perspective regards organizational resilience as the ability of an organization to learn and change. For example, some research considers organizational resilience as the ability to cope with potential threats, effectively cope with emergencies and learn from these events (Duchek, Raetze, & Scheuch, 2019). Lengnick and Beck (2009), from the perspective of strategic human resource management and results, believe that organizational resilience is the result of an organization responding in a resilient way to a severe impact. In addition, there are many perspectives on organizational resilience, such as organizational response to external threats, organizational reliability, business model adaptability, and resilient supply chain design. The definition of organizational resilience has not reached a unified conclusion in the field of business administration.

2.2 International business environment

The current international business environment is in volatility, uncertainty, complexity, and ambiguity. Volatility means that the situation is prone to change, and the speed of change is rapid. Uncertainty refers to the lack of certain information and an environment full of surprises. Complexity means that there are many factors and complex relationships that have an impact on the organization. Ambiguity indicates

that the conditions and relationships are so vague that they are difficult to understand. Li and Zhu (2021) indicate that in today's increasing uncertainty, the frequency of unpredictable adversity events has increased, which poses a potential but unpredictable threat to the development of businesses and organizations. This paper argues that the current international business environment is characterized by the unpredictability of the timing, destructiveness, and mode of occurrence of crises.

2.3 High-tech company

A high-tech company is not strictly an academic definition. Still, due to the contextual requirements of the study of organizational resilience, it is necessary for the authors to identify the characteristics of such enterprises. According to the Measures for the Administration of Identification of New and High Technology Enterprises, high-tech enterprises refer to enterprises that rely on scientific and technological inventions and creations and engage in technology commercialization involving electronic information, aerospace, advanced manufacturing and automation, and other industries. For example, Alphabet, which researches artificial intelligence, ASML, which is engaged in lithography mechanism manufacturing. Huawei, which is engaged in the ICT industry, and DJI, which focuses on civil drones. The characteristics of high-tech companies include a high proportion of R&D expenditure, intensive intelligence, great technical difficulty, and human capital as the core (Li, 2015). In addition, events such as the BIS entity list and Alston show that high-tech companies are likely to encounter more political risks. These factors make high-tech companies more severely affected by the uncertain environment when operating across borders.

2.4 Contingency theory

Contingency theory is a theory of management based on the empiricist school of thought (Guan, 2015). This theory believes that the internal elements and external environment of each organization are different, so there are no principles and methods in management activities that apply to any scenario, which means that management methods should be adapted to the changes in the environment and internal conditions in which the organization is located. The three core features of the Contingency Theory are situational, systematic, and dynamic. Situational means that the organizational structure and strategy of a company should be designed to fit the internal and external environment; systemic means that the various factors

affecting the management model of an organization are an interconnected whole; and dynamic emphasizes that the management model should adapt to changes in the management environment rather than remain unchanged.

The subject of this study is the organizational resilience of multinational technology companies in the current environment. High-tech companies have the following characteristics: (1) weak substitutability of the supply chain; (2) strong influence of supply chain integrity on the normal operation of the company; (3) easy to be the target of sanctions in international political struggle. The current international business environment is characterized by volatility, uncertainty, complexity, and ambiguity. These characteristics provide a unique context for the study of organizational resilience in this paper. Flynn (2016) argues that firms' global operations amplify the adverse consequences of unexpected events, and organizational performance is more vulnerable to uncertainty impact. So what impact does the current volatile, uncertain, complex, and ambiguous international business environment have on such firms? According to Drucker (1954) on the management environment, any factor that affects organizational performance is of concern to managers, whether it is internal or external. The performance of an organization is influenced by both internal and external factors, which are called the management environment. External environmental factors include general environmental factors (political, social, economic, technological) and environmental task factors (suppliers, stakeholders, competitors, etc.), while internal environmental factors include organizational culture factors (values, goal orientation, management philosophy, etc.) and operating conditions factors (human resources, capital, knowledge, etc.). Volatility, uncertainty, complexity, and ambiguity are unpredictable in terms of their impact on the organization. According to the situational nature of the power-change theory, the study of organizational resilience should consider these environmental characteristics and factors.

The core of the contingency theory is that management problems are analyzed from a systems perspective, and he believed that the organization is an open system, and the linkages within each subsystem, between each subsystem, and between the organization and the environment can be used to determine the relationships between various variables. Therefore, management theory research on coping with uncertain environments should cover each factor of the management environment from a holistic perspective. Organizational resilience is a complex and integrated system, and enhancing organizational resilience requires the joint optimization of all systems (Shang, Fan, Yuan, & Li, 2021). Linnenluecke (2017) states that the study of organizational resilience depends on contextual factors, and researchers need to

analyze cases from a holistic perspective. The systematic nature of the contingency theory determines the perspective of this paper on organizational resilience - holistic and integrated.

Contingency theory views the internal factors and external environment of an organization as independent variables and the organizational structure and strategy as dependent variables. The management model varies as a function of the independent variables, including organizational resources, trade environment, and technology level. The dynamic nature suggests that organizational structure and strategy should change according to the changes in the independent variables. This study will sort out the trends in the structure and strategy of the company under the changing environment to understand organizational resilience.

2.5 Resource-based view and dynamic capacity

The resource-based theory holds that an enterprise is a collection of various resources, and heterogeneous resources determine the competitiveness of an enterprise, such as advanced technology, rare talents, and organizational structure that is difficult to replicate. Internal resources and capabilities are more important than the external environment. They form the strategic foundation of the organization, and the organization relies on these foundations to build core capabilities. Barney (2001) defines enterprise resources as those controlled by an enterprise for improving organizational performance, such as assets, organizational processes, knowledge, etc. His VRIN framework held that resources need to conform to the characteristics of Valuable, Rare, Imperfectly Imitable, and non-substitutable to serve as the basis of competitive advantage. The performance of resource-based theory in the field of organizational resilience is just as Vogus and Sutcliffe (2007) put it: Organizational resilience is based on organizational processes and organizational resources. Abundant resources are important variables affecting organizational resilience and can enhance the ability to deal with problems. In this paper, the resources and capabilities used by enterprises to cope with the crisis are divided into two parts. The awareness and culture part is called crisis awareness, and the material part is called resilience resources.

The resource-based view tends to study corporate competitiveness from a static and internal perspective, and it shows limitations in coping with the changing external environment. Therefore, based on the resource-based view, dynamic capability theory is proposed. The theory emphasizes how to acquire and develop

enterprise competitiveness in a dynamic environment. Dynamic capabilities are an enterprise's ability to converge, build, and reconfigure resources to respond to a rapidly changing environment. Teece (1997) believes that in the face of an uncertain environment, organizations need to scan environmental changes and obtain necessary flexibility and adaptability through adaptation, integration, and reconfiguration of resources. Organizational resilience is a special dynamic capability formed in the absence of adverse events. The formation of organizational resilience benefits from the dynamic cycle of three key elements: activation, adaptive reconstruction, and transformation (Shan, Xu, Zhou, & Zhou, 2021). Based on the theoretical framework of dynamic capabilities, this study divides organizational resilience into four parts: crisis warning, resilience mobilization, strategic adjustment, and resilience effect.

Based on the resource-based view and dynamic capabilities, this paper chooses the organizational resilience dimension framework of Patriarca (2018) to study the determinants of organizational resilience. The framework considers that there are four dimensions of organizational resilience - MRAL (Monitoring, Responding, Anticipating, and Learning) and that an organizational resilience system needs to balance these four capabilities to demonstrate resilience as a whole.

Table 2.1 Concepts and theoretical underpinnings

Concept of organization resilience	Theoretical underpinnings
Resilience resource	Resource-Based view (Barney, Vogus & Sutcliff)
Crisis awareness	
Crisis warning	Dynamic capability theory (Teece, Shan, Xu and Zhou)
Resilience mobilizition	
Strategic adjustment	
Resilience effect	
Monitoring, Responding, Anticipating,Learning	Measure dimension of organization resilience (Patriarca)

2.6 Past research

Lack of research on organizational resilience from the perspective of the organization as a whole. According to the literature on organizational resilience collected by the authors, most studies now focus on the impact of one aspect of organizational resilience. For example, Shang analyzed the relationship between internationalization degree and organizational resilience (Shang, Fan, Yuan, & Li, 2021); Pettit applied the concept of resilience to the study of the supply chain. Shan focuses on the promotion effect of Enabling data intelligence on organizational

resilience (Shan, Xu, Zhou, & Zhou, 2021).

There is a lack of research based on multinational high-tech enterprises. Because of the situational needs of organizational resilience research, the characteristics of organizational resilience of different types of enterprises are different. Shan took Lin Qingxuan, a local cosmetics company in China, as an example to conduct research (Shan, Xu, Zhou, & Zhou, 2021); Yan (2021) studied the improvement path of organizational resilience against the background of media companies in the Omnimedia era; Some study analyses from a theoretical perspective without context (Duchek, Raetze, & Scheuch, 2019).

2.7 Theoretical framework

This paper uses contingency theory, resource-based view, and dynamic capability theory to study Huawei's organizational resilience. This study explores the process and mechanism of organizational resilience through qualitative research methods and further determines the regulating variables of organizational resilience.

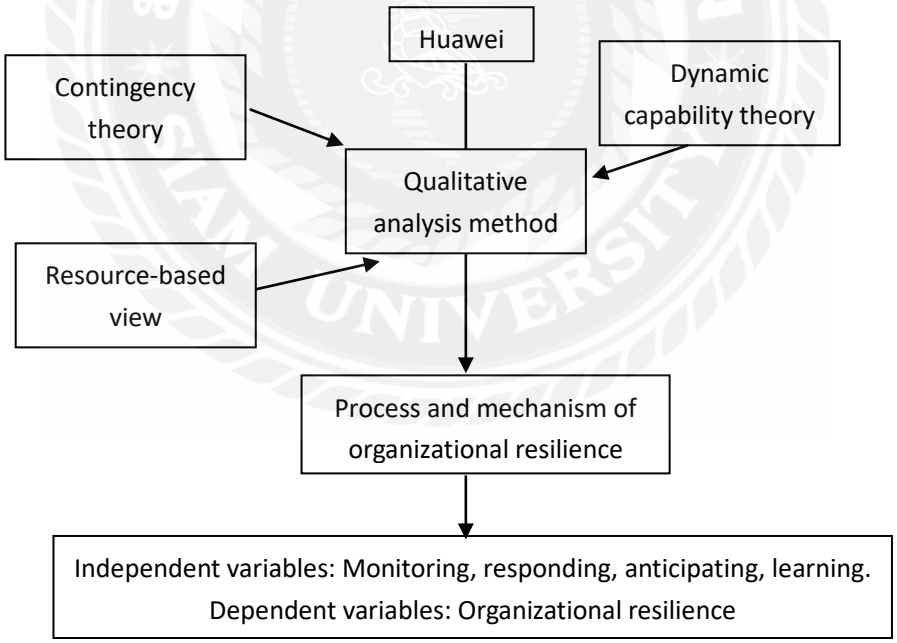

Figure 2.1 Research framework

2.8 Crisis response of Huawei

2.8.1 Basic information of Huawei

Huawei is a high-tech company founded in 1987 in Shenzhen, China. It is the world's leading provider of ICT (Information and communication) facilities and intelligent terminals. Its main business is communication equipment and services, smartphones, and enterprise digitalization. Huawei currently employs about 195,000 people and operates in more than 170 countries and regions. In 2021, the company had total revenue of about 636.8 billion yuan and a net profit of about 113.7 billion yuan. Huawei was founded in Shenzhen, China, in 1987 as a distributor of switches. From 1990 to 1998, Huawei began to independently develop switches and carry out GMS business, and the company's business shifted from rural areas to cities. Since 1999, it has operated internationally. It has set up a number of overseas research centers and is expanding its business overseas. At present, Huawei has become the world's No. 1 communication equipment supplier and No. 2 mobile phone enterprise, with overseas sales reaching 214.4 billion yuan (Source: https://www.huawei.com/cn/annual-report).

This paper provides a chronological overview of key events in Huawei's international operations from 1987 to 2021 and divides these projects into four phases. The following are the key events of Huawei over the years:

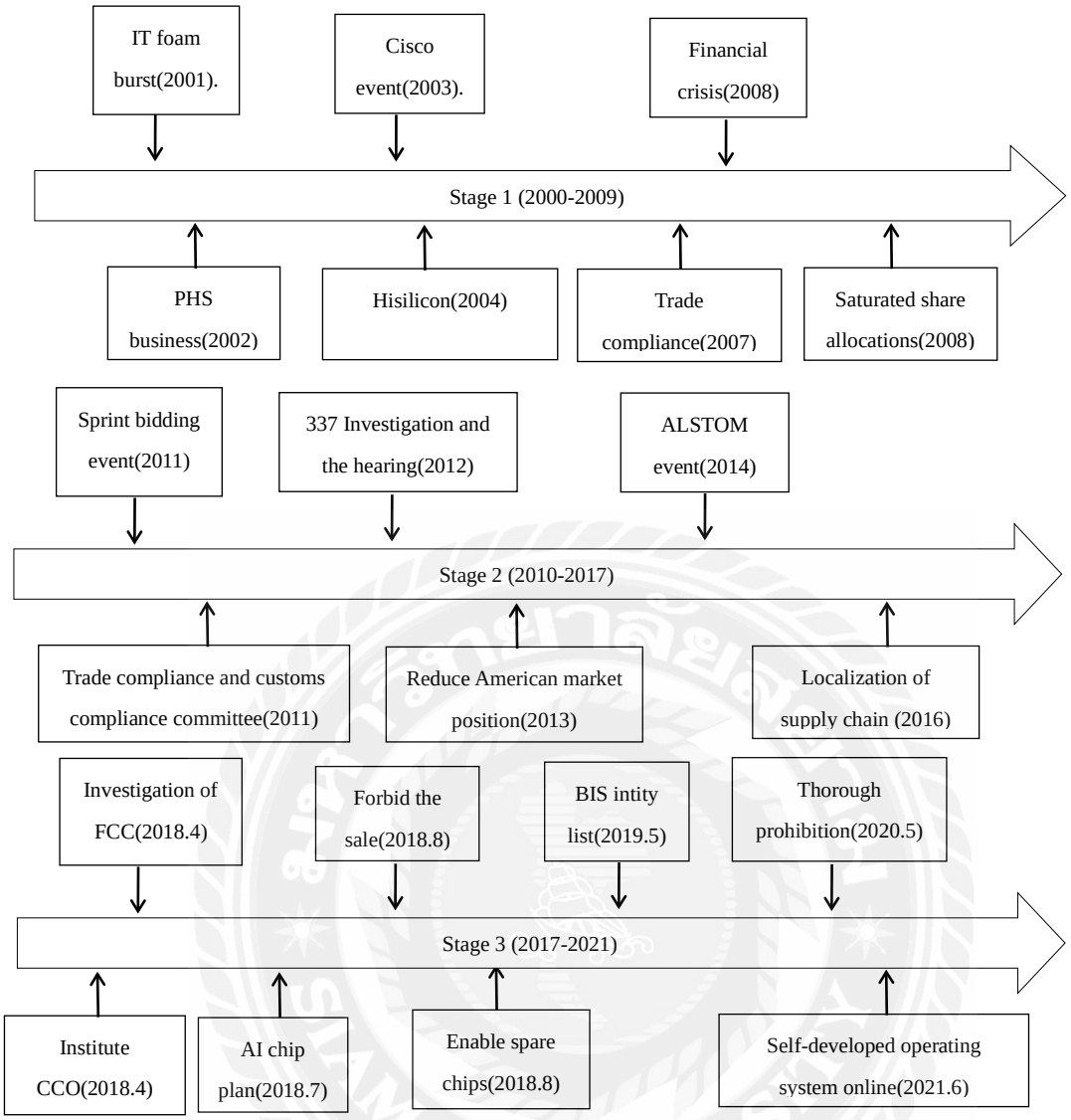

Figure 2.2 Major events of Huawei

2.8.2 Stage 1 (2000-2009)

Process and mechanism analysis of organizational resilience: In this paper, the 1st-order/2nd-order structured data analysis method is used to code the raw data to obtain rigorous qualitative analysis results, show the connection between the data and the newly generalized concepts and form the concept of aggregation. First, the data are decomposed, refined, and reduced from the perspective of the source material itself, resulting in a labeled and conceptualized first-order coding. We need to analyze the nature and type of the first-order coding from the researcher's perspective to obtain 2nd-order coding; Finally, the aggregate concepts are formed by classifying data of the same nature.

Crisis awareness: Crisis talk. In 2000, Huawei became the first domestic electronic enterprise, and its financial growth was great. However, under such background, the chairman of the board published an article named Huawei's Winter. He expressed intense concern about plummeting revenues and corporate bankruptcies and wrote such thoughts as: "For ten years, I never thought about success. What if all my ideas fail?" The essence of the data is that the decision-maker has a sense of crisis.

Resilience resource: (1) Organizational structure. From 1996 to 2003, with the increase of international market share, Huawei's organizational structure gradually changed from linear to matrix, and finally formed a two-dimensional matrix organizational structure combining business divisions and regions. This organizational structure helps it to improve efficiency and reduce the cost; (2) Technology. In 2005, 3G technology was successfully developed and started to be used commercially. Compared with other top 3G technologies in the world, Huawei's solutions have the same performance and lower cost. (3) Finance. Except for a period of negative revenue growth in 2002, Huawei's revenue, profit, and cash flow have maintained rapid growth (Source: https://www.huawei.com/cn/annual-report). The technology, finance, and organizational structure are material resources of the company.

Crisis warning: (1) IT foam. The chairman of the board made predictions on unknown and serious risks under the condition of good corporate benefits, which promoted the formation of the organization's risk control organization and crisis consciousness, and the revenue decline brought by the IT bubble burst was the confirmation of this prediction. (2) Cisco event. In 2003, Cisco's lawsuit against Huawei drew attention to compliance issues and core technology issues. Huawei realized there were some risks to compliance and core technology. (3) The 2008 financial crisis. Some employees want to quit their shares because of panic, and some stop fighting because of a lack of enthusiasm. Huawei realized its equity allocation system is incomplete. The essence of the data is obtaining information about the crisis and risk.

Resilience mobilization: (1) BCM. After completing the crisis warning, Huawei chooses to improve organizational conservatism to mobilize organizational resilience. In 2004, Huawei adopted the BCM (Business Continuity Management) system to control its entire operation. This system can formulate contingency plans for all kinds of emergencies to guide the actions of various functional departments to ensure that the organization's business is not interrupted. Typical scenarios include

earthquakes, typhoons, war, infectious diseases, political events, compliance, strike, etc. BCM gives enterprises more options to ensure the stable and continuous operation of the organization in the face of unexpected situations. (2) PHS. Huawei missed the PHS market at the very beginning due to strategic mistakes, and the 3G technology research and development has been a huge investment but lack of progress, which led to problems in the company's revenue and cash position. In 2002, Huawei started to research and develop PHS with its communication technology foundation and kept the cost and price of PHS low so that it seized a large number of market shares. PHS is not a strategic key product, but it brings a large number of profits and cash flow for Huawei in the short term and improves the fund conservatism, so Huawei can perform well in future investment and R&D strategy. The essence of the behaviors is mobilizing the resources to deal with the crisis.

Strategic adjustment: (1) Hisilicon. When Huawei set up Hisilicon in 2004 to focus on chip research and development, the chairman told the head of Hisilicon: "Ren Zhengfei gave the head of Hisilicon chip research and development a task: I will invest much money in research and development every year, and many people, and I must stand up." It is worth mentioning that in the early stage, the Hisilicon chip business was a project with only investment but no profit. However, Huawei has been insisting on increasing investment in order to achieve core technology autonomy. After the crisis, Huawei increased its R&D investment year by year and established a number of overseas R&D centers to elevate the core technology R&D to the strategic level. (2) Compliance strategy. In 2004, a high-level meeting of Huawei began to discuss the construction of enterprise compliance and raised trade compliance to the strategic level. In 2007, the Trade Compliance and Customs Compliance Committee came into operation, and in 2008, the Risk Management Department was established to review and manage compliance of export business, which could also communicate directly with senior management without going through other procedures and agencies. The essence of the behaviors is to integrate and allocate the resources to obtain long-term abilities and resources.

Resilience effect: Performance. In 2002, the company experienced negative revenue growth for the first time, but due to its excellent performance in the PHS market and the technology accumulation achieved through 3G technology research and development, Huawei's revenue increased by about 43% year-on-year in 2003 and 46% year-on-year in 2004. In 2005, Huawei commercialized its 3G technology and opened the European market, and its revenue grew about 40 percent year on year (Source: https://www.huawei.com/cn/annual-report). After the impact of the IT bubble burst and the Cisco event, Huawei experienced a decline in organizational

performance and survival difficulties. However, through the mobilization of organizational resilience and the utilization of organizational resources, Huawei recovered its revenue growth within one year and maintained rapid growth of organizational performance in the following years. The essence of Huawei’s performance is the company recovered from the crisis and grew.

2.8.3 Stage 2 (2010-2017)

Crisis awareness: (1) Crisis awareness of decision makers. The boss believes there will be unpredictable risks around the world and that companies' internal and external compliance systems are incomplete. (2) Organizational crisis culture. In an article titled "Winter Shock" on Huawei's internal forum, the author argues that crisis is one of Huawei's core values, a view widely supported by employees. The essence of the data is that Huawei’s members and organizations have a sense of crisis.

Resilience resource: (1) Technology. According to 2010 WIPO (World Intellectual Property Organization) data, Huawei ranked fourth in the world with 1,528 patents. By the end of December 2010, Huawei had applied for 31,869 patents and was granted 17,963 patents. In 2007, Huawei successfully developed a baseband processor, the core device of mobile communication, and launched the first smartphone processor K3V1 in China in 2009 (Source: https://m.hqew.com/tech/news_1526901). (2) Finance. In 2010, Huawei's revenue was 185.2 billion yuan, ranking second in the world as a supplier of communications equipment. Among them, net profit reached 23.8 billion yuan, and operating cash flow reached 38.1 billion yuan (Source: https://www.huawei.com/cn/annual-report). (3) Organizational structure. The Blue Army, established in 2006, is a well-developed organization that examines corporate strategy from a different perspective, simulates rival strategies, and offers criticism. It once organized the boss to sell what became the firm's core business, smartphones, which arguably facilitated the organization's ability to correct errors. The technology, finance, and organizational structure are material resources of the company.

Crisis warning: (1) Compliance risk. In 2010, Huawei was barred by the U.S. government from bidding for network equipment by U.S. mobile phone operator Sprint, citing threats to national information security. The following year, the U.S. International Trade Commission opened an investigation into Huawei to determine whether it posed a national security threat and found no espionage, embargo violations, or technology theft. However, in a hearing in 2012, the U.S. House Intelligence Committee continued to argue that Huawei had government and military connections that could threaten U.S. national security. Huawei is aware that the

compliance system is not complete. (2) Political risk. Alstom is a power company from France that is highly competitive in the power industry. In 2013 the head of the company's core unit was arrested by the FBI in connection with a bribery case in Indonesia. America's Justice Department ordered Alstom to pay a fine and sell its core business. In the end, the core Alstom business was dismembered and sold to General Electric. Huawei recognizes the risks of politicizing trade issues and that supply chain and market safety are not enough. The essence of the data is obtaining information about the crisis and risk.

Resilience mobilization: (1) Trade and customer compliance committee. Huawei has expanded the scope of compliance construction from internal compliance to leading network compliance. After recognizing the risks in the market and supply chain, Huawei chooses to reduce its dependence on the American market and core technologies and increases its R&D investment in core technologies such as operating systems and chips to enhance the robustness of its production and operation. (2) Localization of supply chain. Huawei's supply chain structure changes from a quality and cost orientation to a dependence reduction orientation and improves supply chain selectivity by reconstructing the supply chain. The essence of the behaviors is mobilizing the resources to deal with the crisis.

Strategic adjustment: (1) R&D strategy. In 2011, Huawei established the 2012 Lab. In 2012, the lab consumed most of Huawei's R&D funds to be responsible for the research and development of cutting-edge technologies such as new-generation communication technology, artificial intelligence, and semiconductor technology. From the perspective of R&D investment, Huawei continues to increase its R&D funds for key technologies. From 2010 to 2017, Huawei's total R&D investment accounted for 14.43% of its operating revenue on average, which was 9% from 2000 to 2009 (Source: https://www.yicai.com/brief/101363128.html). (2) Compliance strategy. In 2011, the company established a Global Cyber Security Officer responsible for ensuring network security and preventing the disclosure of user and customer data and privacy. In the same year, the company set up a Trade Compliance and Customs Compliance Committee to review and supervise the company's trade compliance policies. In 2014, a supervisory subsidiary board of directors was set up to supervise the internal and external compliance of the subsidiary. Huawei has also included the compliance capability of suppliers in the evaluation index of suppliers; (3) Market strategy. In 2012, Huawei announced its exit from the U.S. telecom carrier market, and in 2013, Huawei gave up its strategic position in the U.S. consumer and enterprise business market. (4) Supply chain strategy. Continue to promote the localization and diversification of core devices. The essence of the

behaviors is to integrate and allocate the resources to obtain long-term abilities and resources.

Resilience effect: Performance. In 2017, Huawei had a revenue of 603.6 billion yuan, a net profit of 47.5 billion yuan, and a cash flow from operating activities of 96.3 billion yuan. From 2011 to 2017, the company's revenue roughly tripled, and its profit roughly quadrupled. After the crisis, the organizational performance was not affected and maintained rapid growth (Source: https://www.huawei.com/cn/annual-report). The essence of Huawei’s performance is the company recovered from the crisis and grew.

2.8.4 Stage 3 (2018-2022)

Crisis awareness: (1) Crisis awareness of decision makers. In October 2020, Huawei's CEO said at the fall product event that Huawei was in a very difficult time. The only thing left to do is survive. (2) Organizational crisis culture. Huawei's internal forum has a topic called "Filling Holes" for employees to discuss crises and vulnerabilities in the company. After several serious crises, the company has formed a strong sense of crisis from leaders to grassroots and from organizations to individuals. The essence of the data is that Huawei’s members and organizations have a sense of crisis.

Resilience resource: (1) Technology. In 2017, Huawei ranked first with 2,398 patent applications. As of December 31, 2017, Huawei has granted 74,307 patents in total, and the number of R&D personnel has reached 80,000, accounting for almost half of the total number of employees of the company, and its R&D investment ranks among the top three in the world (Qiu, 2022). In 2017, Huawei released the artificial intelligence chip K3V1, and the 5G (fifth-generation communication technology) technology is at the top level in the world. Hisilicon has become one of the world's top five smartphone chip designers and has made progress in developing its own operating system; (2) Finance. In 2017, Huawei had a revenue of 603.6 billion yuan, a net profit of 47.5 billion yuan, and a cash flow from operating activities of 96.3 billion yuan. Huawei's revenue level has entered the world's top 100, a good revenue situation for Huawei to provide a strong capital base (Source: https://www.huawei.com/cn/annual-report); (3) Organizational structure. Huawei has established a mature, efficient, and advanced organizational structure and process. Similarly, Huawei has also achieved achievements in the construction of its compliance system, which includes anti-commercial bribery, trade compliance, financial compliance, network security and privacy protection, intellectual property rights and trade secret protection, and supplier and partner compliance. The technology, finance, and organizational structure are material resources of the company.

Crisis warning: (1) Compliance risk. The FCC investigation allowed Huawei to plug a hole in its compliance system; (2) Political risk. In 2019, the BIS added Huawei to its entity list, which prohibits any US company from exporting technology and products to Huawei. This means that Huawei will not be able to obtain chips, wafers, and operating system licenses from companies such as Intel, Qualcomm, and Google, and its core business of smartphone and chip manufacturing will be severely affected. In 2020, BIS imposed further sanctions on Huawei. The BIS requires that any foreign semiconductor company that uses US technology does not provide products and technology to Huawei without a license. The BIS then banned Huawei from acquiring any technology and software developed in the United States. This means that Huawei's channels to purchase and process high-end chips, as well as core materials and software, are all blocked. In other words, Huawei can no longer obtain chips, the core components of smartphones. Huawei's core business has suffered a fatal blow, threatening its survival. The essence of the data is obtaining information about the crisis and risk.

Resilience mobilization: (1) Improve the robustness of the supply chain and market. Huawei's supply chain localization and formal withdrawal from the US market ensure the stability of the supply chain and market. In fact, as a result of strategic changes made before the crisis, Huawei's dependence on the US supply chain has been reduced to the lowest level allowed in reality, and its business in the US has only a few R&D departments; (2) Redundancy. There is a lull between the ban and its effect, which Huawei uses to overbuy chips to boost its inventory. In 2012, Hayes began Plan B, in which it would keep five to 10 months 'worth of chips in redundant storage in its warehouses. In 2019, the backup chips for Plan B were fully deployed, which ensured Huawei's smartphone production for a while. The essence of the behaviors is mobilizing the resources to deal with the crisis.

Strategic adjustment: (1) Compliance strategy. Huawei created the position of chief compliance officer in April 2018, a position that reports directly to the board. In addition, the company also appoints compliance officers and establishes compliance organizations in all business departments and subsidiaries around the world to further improve the compliance system. (2) R&D strategy. Huawei has stepped up research and development in cutting-edge technologies, such as artificial intelligence chips, Internet of Things technologies, autonomous driving, cloud computing, and big data. (3) Market strategy. On the one hand, Huawei tries to accelerate the commercialization of technologies, such as the launch of the Harmony operating system to replace Google's Android system and promote the commercialization of chips in cloud servers, 5G base stations, home appliances, and other application scenarios. On the other hand, Huawei has shifted its focus to the enterprise business, other smart devices business, automotive business, and so on due to the constraints on its smartphone business. The essence of the behaviors is to

integrate and allocate the resources to obtain long-term abilities and resources.

Resilience effect: (1) Performance. In 2018, Huawei's revenue grew about 20 percent year on year, and its net profit grew about 25 percent year on year. In 2019, revenue was up about 19% year over year, profit was up about 25% year over year, and cash flow from operating activities was up about 22% year over year. In 2020, revenue increased by about 4% year over year, net income increased by about 3% year over year, and cash flow from operating activities decreased by about 62% year over year. In 2021, revenue was down about 29% year over year, with the most affected consumer business shrinking by half, profit was up about 76% year over year, and cash flow from operating activities was up about 70% year over year (Source: https://www.huawei.com/cn/annual-report). According to the data, Huawei's growth rate fell sharply in 2020 as sanctions pushed forward, and its total revenue and core business revenue fell sharply in 2021. It can be seen that BIS sanctions seriously affect the organizational performance of the company. But as Huawei cut costs and shifted market focus, its enterprise business, smart home business, automotive business, and patent fees all rose. As a result, despite a sharp decline in revenue in 2021, profits and cash flow grew significantly. The effectiveness of the organization quickly returned to growth after the fatal damage. (2) Robustness of business process. After the chip supply outage, Huawei maintained the top five smartphone sales in China with the help of the spare tire program and chips stockpiled during the buffer period. After the license of the Android operating system was terminated, Huawei launched its own operating system to replace Android to guarantee software support for smartphones. By mobilizing resilience, Huawei has ensured the normal operation of the organization's production and operation links after being damaged by the crisis. The essence of Huawei’s performance is the company recovered from the crisis and grew.

Analysis of regulating variables of organizational resilience: The above analysis shows the process and mechanism of Huawei's organizational resilience, and in order to study how to improve the level of organizational resilience, we also need to identify the regulating variables of organizational resilience. We have sorted out the organizational behaviors and factors that play a role in the process and mechanism of organizational resilience. First, according to Patriarca (2018) theoretical framework: organizational resilience is divided into four dimensions: monitoring, responding, anticipating, and learning, and these behaviors and factors are screened, decomposed, refined, and categorized to form a new 1st-order code; then, the 1st-order code is abstracted and clustered to form a 2nd-order code.

Monitoring: (1) Crisis awareness. The early crisis consciousness of leaders is the prerequisite for the formation of organizational crisis monitoring mechanisms and organizational crisis culture, and organizational crisis consciousness is the guarantee for the continuous operation of the crisis monitoring mechanism. (2) Self-

criticism mechanism. In addition to external crises, enterprises also have internal crises. Confrontational organizations like Blue Army can find strategic loopholes, while self-critical activities and mechanisms can identify institutional crises. (3) Risk management department. The sectioning and specialization of risk management can help to monitor and respond to crises more effectively. Monitoring reflects the organization's ability to obtain information about internal and external risks.

Responding: (1) Profit distribution. Huawei has gone through seven shareholding reforms, and its core idea is to pursue the unity of value creators and benefit recipients. Huawei binds the interests of employees and the company through employee stock ownership and holding a trade union committee, which improves the enthusiasm and organization, and execution of employees. (2) Organizational structure and process. Huawei's organizational structure reform route was: linear→ linear functional → matrix combining business divisions and regions → matrix combining product lines and business divisions→3D project structure of customers, products, and regions. In the process of internationalization and crisis brewing, Huawei's organizational structure has developed towards decentralization, flexibility, and multi-dimension, which helps the organization to operate efficiently and cope with the complex and changeable environment. In addition, IT has increased the speed of information exchange; (3) Financial redundancy. Although financial redundancy will limit the expansion speed of enterprises, in a crisis-filled uncertain environment, appropriate redundancy can provide more space for the organization to cope with unpredictable crises. (4) Resource redundancy. (5) Robustness. (6) Core technical capabilities. Responding reflects the organization's ability to act in response to crises in the following main directions: technologically advanced, redundant, and robust.

Anticipating. (1) Strategic foresight. Huawei launched the spare tire program and the operating system development program in 2012, but the two programs will take effect for seven and eight years, respectively. (2) Risk prediction. Huawei made the extreme survival assumption of overcutting supply years ago. Strategic foresight and risk prediction are important reasons for Huawei's robustness, agility, and response speed in the crisis. Anticipating reflects the organization's ability to identify and prepare for potential crises.

Learning. (1) Learning from crisis events. After missing opportunities in the PHS market and declining revenue in 2001, Huawei reflected on the balance between short-term and long-term interests and quickly entered the PHS market to cut its losses. After the Cisco incident, Huawei realized the importance of chip

manufacturing and compliance construction. Subsequently, Hayes was established, and the compliance strategy began. (2) Learning mechanism and motivation. Huawei established Huawei University in 2005, which summarized the experience and lessons, key events, meeting spirit, and other materials in the process of Huawei's development, and formed a large number of learning materials and theories. Schools use these materials to train employees and partners to improve crisis management across their corporate networks. Huawei also includes learning in performance appraisal, and the proportion is relatively high, which provides motivation for employees and organizations to learn. Learning reflects the organization's knowledge accumulated after a crisis and the application of that knowledge.

Chapter 3 Research Methodology

This paper uses qualitative analysis to study Huawei to understand the principle and improvement methods of organizational resilience. The research methods are case study, literature method, and interview method. The study collected data by literature and interview. The literature sources are research papers, books, websites, and corporate materials about Huawei. The interview was conducted with ten Huawei employees. The interview methods were offline interviews in Kunming, Yunnan Province, telephone recordings, and interview questionnaires.

Contingency theory provides the research idea for this paper: fully consider the uncertain international business environment, analyze the organization management of enterprises from the whole perspective, and form the organizational resilience theory from the dynamic perspective. The resource-based view and dynamic capability theory explain the resources needed and the process of forming organizational resilience. According to these theoretical principles, this study determines what data needs to be collected about Huawei and summarizes these data into the formation mechanism of organizational resilience. The data required by these theories are Huawei's important decisions and events, Huawei's crisis and response methods, Huawei's basic information, and the influence of Huawei's enterprise resources and crisis response. Based on this, the interview questions are as follows: (1)What are the strengths and weaknesses of Huawei? (2) What is your attitude towards the current situation and future of Huawei? (3) Please talk in detail about the crises Huawei has suffered. (4) How did Huawei respond to these crises? (5) What are the results of the responses? (6) What are the major decisions in Huawei's history? (7) What are the impacts of the decisions on Huawei? (8) What factors have contributed to Huawei's ability to survive and develop in multiple crises?

This study involves ten interviewees from the Huawei Yunnan branch, covering different departments, positions, ages, and work experience. The interview information sources are diverse. The proportion of men and women is 40% and 60% respectively. The age range is 27 to 34. Half of the respondents are from the technology and R&D departments, involving chip R&D, software engineering, artificial intelligence, etc. The other half are from the business and management departments, involving compliance management, supply chain, legal affairs, etc. Thirty percent of the respondents had less than five years of work experience. Employees with five years or more of working experience account for 70%.

Table 3.1 Interviewees information

Interviewee	Department	Position	Gender	Age	Service years
1	R&D department	Chip development engineer	Male	27	4
2	R&D department	FPGA engineer	Male	29	5
3	Human resources department	HR	Female	30	5
4	Supply chain management department	Supply chain management engineer	Female	28	5
5	R&D department	AI engineer	Female	26	2
6	R&D department	Chip development engineer	Male	30	4
7	R&D department	Software systems engineer	Female	34	10
8	Third party	Store manager	Male	32	7
9	Legal affairs department	Compliance specialist	Female	30	6
10	Marketing department	Customer manager	Female	27	3

Firstly, this paper uses a first-order/second-order structured data analysis method to code the collected data, determine the behaviors and factors that form and promote organizational resilience and summarize them into six concepts. These concepts show the process of formation and improvement of organizational resilience and the role played by each part. According to the resource-based view, the enterprise resources that support organizational resilience include material resources and consciousness, and cultural resources. The dynamic capability theory believes that the process of responding to a crisis is: scanning the crisis information in the environment, mobilizing resources to respond to the crisis, re-integrating enterprise resources, and successfully adapting to the environment. This study classifies and codes the data according to the principles of these theories. The structured data analysis method is shown in the table below.

Table 3.2 Structurred data analysis method

First-order coding	Second-order coding	Aggregate concepts
Refine the original data	Determine the essence of the first-order codes and categorize them	Summarize the second-order codes into one concept

Then, through the frame coding method, these behaviors and factors that form and promote organizational resilience are analyzed according to the framework of monitoring, anticipating, responding, and learning to obtain the regulating variables of organizational resilience. The regulating variables show how to analyze the organizational resilience ability of enterprises and how to improve organizational resilience. The analysis model of the frame coding method is as follows.

Table 3.3 Frame coding method

Framework	First-order coding	Second-order coding (regulating variables)
Monitoring	Classify the behaviors and factors that improve the organizational resilience into the first-order codes	Summarize the first-order codes into the regulating variables
Responding		
Anticipating		
Learning		

Chapter 4 Finding And Conclusion

4.1 Behaviors and factors that determine organizational resilience

This paper uses qualitative analysis, case study, literature methods, and interview methods to study Huawei's organizational resilience and analyzes the process and mechanism of the enterprise's organizational resilience. This study collects Huawei's corporate status, crisis, crisis response, and major events by literature and interview. Through structured coding, this study forms six aggregate concepts: crisis warning, resilience mobilization, strategic adjustment, resilience effect, resilience resources, and crisis awareness. Based on this, the authors further coded according to the framework of monitoring, responding, anticipating, and learning and obtained regulating variables involving four dimensions with some evaluation indicators to measure the organizational resilience of enterprises. This study solves the problem of unclear organizational resilience mechanisms and provides methods for enterprise managers to improve organizational resilience.

The first objective of this study is to explore the behaviors and factors that play a role in forming and promoting organizational resilience. The study finds out the reasons and principles for Huawei's strong organizational resilience and provides a systematic theory for high-tech enterprises to form and promote organizational resilience. The finding shows the behaviors and factors that promote organizational resilience. The founder of Huawei had a strong sense of crisis at the beginning of the company's establishment and established an early crisis management system for Huawei. Later, under the influence of the system and corporate culture, Huawei employees generally formed a strong sense of crisis. A general sense of crisis is the driving force behind Huawei's crisis response. Huawei has top technical capabilities, which guarantee Huawei's good income and business stability. Huawei's ample revenue and cash flow allow the company to maintain high R&D investment and operational flexibility. Huawei also continuously changes its organizational structure to gain stronger execution and crisis response speed. Huawei's prediction of unknown political crises and compliance risks is very accurate, and the identification of crises provides key information and a basis for Huawei's crisis response. Huawei's important crisis response actions include continuous improvement of the compliance system, establishment of a reliable supply chain, and timely business adjustment. In terms of corporate strategy, Huawei has formulated a long-term and high-investment research and development strategy. Such as the establishment of Hisilicon and the

2012 Lab, whose technology helped Huawei stay financially sound and grow during the later fatal crisis. In addition, Huawei's robust compliance, supply chain, and marketing strategies have helped Huawei avoid many crises. These are the reasons for Huawei's good organizational resilience. The theory of forming and improving organizational resilience can be obtained through the above finding.

These behaviors and factors can be summarized into six concepts: crisis warning, resilience mobilization, strategic adjustment, resilience effect, resilience resources, and crisis awareness. Crisis warning means that the organization obtains internal and external crisis information and identifies the occurrence time, impact, and destructiveness of the crisis. Resilience mobilization means the organizational behavior that activates the resilience mechanism; Strategic adjustment refers to promoting organizational resilience of long-term planning; Resilience effect means that enterprises maintain the normal operation of the organization and restore and develop the organizational performance in the crisis; Crisis awareness refers to the concern of individuals and organizations for the crisis and the willingness to deal with the crisis; Resilience resources are defined as the resources and capabilities that an organization has at the time of a crisis, such as capital and business processes.

The forming and promoting process of organizational resilience is a dynamic and cyclic process. The early crisis awareness of the leader is the source of organizational resilience. Crisis warning is the premise of the whole process of organizational resilience response. Leader and organizational crisis awareness help trigger the resilience mechanism, and resilience resources provide available support for organizational behavior. Only after recognizing the crisis, with crisis awareness and certain resilience resources, can enterprises mobilize organizational resilience and implement strategic adjustment according to the time, impact, and destructiveness of the crisis. Resilience mobilization utilizes resilience resources to help organizations maintain the stability and development of performance, and strategic adjustment strengthens the foundation of future resilience. After these crises and organizational behaviors to cope with crisis, organizational performance remains stable and develops, showing the resilience effect. In this process, resilience resource, crisis awareness, and crisis warning capabilities are kept growing, and resilience mobilization and organizational strategy integration are adjusted in the direction of enhancing these capabilities.

4.2 Regulating variables of organizational resilience

The second objective of the study is to determine the regulating variables of organizational resilience. They can provide realistic and usable organizational resilience analysis models and improvement methods for high-tech enterprises. The behaviors and factors that determine organizational resilience are procedural and theoretical conclusions, so it is difficult to apply them to enterprise management. Therefore, this study transforms these behaviors and factors into the regulating variables of organizational resilience from the perspective of ability. These variables can be used to analyze the level of organizational resilience of an enterprise. Raising the level of these variables can promote organizational resilience. The regulating variables of organizational resilience are shown in the table.

Table 4.1 Regulating variables of organizational resilience

Framework	Regulating variables
Monitoring	Crisis awareness
	Self-criticism mechanism
	Risk management departments and mechanisms
Responding	Degree of unity between benefit distribution and value creation
	Organizational structure and process
	Financial redundancy
	Resource redundancy
	Robustness of supply chain
	Core technology capabilities
Anticipating	Strategic forward-looking
	Risk forecast
Learning	Learning from crisis events
	Learning mechanism and motivation

The table evaluates the level of organizational resilience from four dimensions. Monitoring reflects the organization's ability to obtain internal and external risk information; Responding reflects the ability of the organization to respond to the crisis. Anticipating reflects the organization's ability to identify and prepare for potential crises. Learning reflects the knowledge accumulated by the organization after the crisis and the application of that knowledge.

The above finding can further summarize the reform direction and method of improving organizational resilience in enterprise management. The managers of high-tech enterprises can try to improve the organizational resilience of the company by trying the following methods and principles to manage and improve the enterprise.

For monitoring ability, the highest decision-makers need to form a strong crisis awareness in the early stage. Crisis awareness should cover the high-level, grassroots, individuals, and the whole enterprise. The enterprise should establish an effective self-criticism mechanism to find internal crises and loopholes, constantly reform the enterprise system, and challenge the enterprise's decision. The enterprise should also establish a special crisis management department and mechanism to maintain keen monitoring of the crisis and support the normal operation of the enterprise in the crisis. In terms of responding ability, the enterprise should let the people who create value share more value to improve the organization's executive force and the employees' enthusiasm. This requires constantly adjusting the income and distribution system to make the value tilt to the people who create value. The organizational structure should be transformed from linear to network, and part of the decision-making power should be transferred to the grassroots. Redundant resources are also necessary. The enterprise should maintain sufficient cash flow and a low debt ratio for finances. The enterprise should also maintain the redundancy of core components and materials inventory. The enterprise needs to ensure the supply chain's replaceability, controllability, and stability. Increasing the proportion of R&D expenditure and pursuing advanced technology can form a strong core technological ability. In anticipating, decision-makers need to consider future crises in advance and formulate long-term strategies. Decision-makers should not only identify the crisis that has happened but also predict unknown crises and risks. In learning, enterprises should have the ability to learn from crises. The experience gained from crises should form learning materials and bring about system changes. In addition, enterprises need to take learning and employee training as important work. Learning can be linked to performance and income.

This study has a certain value for researching organizational resilience and enterprise application. Academic value. This study explores how to improve organizational resilience from a holistic and comprehensive perspective, shows the mechanism and process of organizational resilience quite completely, and points out the importance of leaders' early crisis awareness. In addition, it fills the gap in the research context of organizational resilience in multinational high-tech companies and provides a theoretical reference for this kind of company to improve organizational resilience. Realistic value. In the current international uncertain business environment, high-tech companies lack sufficient theories and measures to cope with frequent and uncertain crises. This study provides an available analysis model of organizational resilience and the improvement method of organizational resilience for high-tech enterprises. These can help the enterprise recover quickly from the crisis and maintain the complete operation of the enterprise.

Chapter 5 Recommendations

Pay attention to the early crisis awareness of the leader. It is difficult to predict the crisis caused by the uncertain environment. If leaders do not form a strong sense of crisis in the early stage, the construction of the organizational resilience mechanism of enterprises will lag behind, and it will be difficult to cope with emergencies. According to the findings of this paper, the response speed of the organization depends on the time and adequacy of strategic preparation, so the company needs a leader to form a strong sense of crisis in the early stage to ensure the formation of organizational resilience mechanism and sufficient preparation time.

Avoid blind expansion. The study believes that advanced technology, robustness, redundancy, and organizational networking are the direction of change to improve organizational resilience. However, these directions are contradictory with enterprise scale expansion in the short term. For example, in order to pursue advanced technology, enterprises need to increase R&D investment, but this may lead to short-term cost increases, business expenditure reduction, and miss out on high-profit and low-technology market opportunities. Blind pursuit of expansion will lead to shortsightedness and a low fault tolerance rate. Decision-makers need to balance long-term interests and short-term interests and sacrifice performance growth to accumulate the organization's crisis response ability when necessary.

Specific measures. This study demonstrates the theories and principles for improving organizational resilience. According to the direction of change to promote organizational resilience and the experience of the case company, the specific measures to improve organizational resilience are as follows: (1) democratic life. Democratic life can systematically achieve criticism of self-criticism and the criticism of subordinates to superiors, which are weak links in the conventional way of information exchange. This measure can improve the ability of enterprises to identify habitual and systematic vulnerabilities in the organization; (2) Intelligence. With the advancement of enterprise digitalization, the organization's operation generates a large amount of data, which is difficult for human beings to use directly. However, artificial intelligence can use big data technology to analyze crisis characteristics from massive data and give early warning. Intelligence can help organizations improve operational efficiency and crisis identification ability. (3) Perfect compliance system. International trade is fraught with rule differences between a company's home country and other countries, and in an environment

where political risks become frequent, compliance issues are the first link in dealing with political risks. A defective compliance system will put a company in the adversity of violation and violation. On the contrary, a sound compliance system can raise the cost and delay the arrival of a political crackdown.

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Appendix

Appendix A Interview

1. Age: ____
2. Gender: Male ☐ Female ☐
3. Service years: _____
4. Work place: _____
5. What is your position at Huawei?
6. What is your daily job?
7. What department do you belong to?
8. What is the direction of your work?
9. What are the strengths and weaknesses of Huawei?
10. What is your attitude towards the current situation and future of Huawei?
11. Please talk in detail about the crises Huawei has suffered.
12. How did Huawei respond to these crises?
13. What are the results of the responding?
14. What are the major decisions in Huawei's history?
15. What are the impacts of the decisions on Huawei?
16. What factors have contributed to Huawei's ability to survive and develop in multiple crises?